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09/837,241	04/18/2001	James G. Clements	SP00-124	1367

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CORNING INCORPORATED
SP-TI-3-1
CORNING, NY 14831

EXAMINER

QUAN, ELIZABETH S

ART UNIT	PAPER NUMBER
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1743

DATE MAILED: 11/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/837,241

Applicant(s)

CLEMENTS ET AL.

Examiner

Elizabeth Quan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/29/2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 51-91 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 51-91 is/are rejected.
- 7) ☒ Claim(s) 56 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claim 56 is objected to because of the following informalities: It is dependent upon itself. Appropriate correction is required.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 59, 70, 77, 87, 88 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Referring to claims 59, 77, there appears to be no support for the recited numerical range of optical flatness. Referring to claims 70, 87, there appears to be no support for the inorganic coating. Referring to claim 88, there appears to be no support for the sidewalls of the sample well not functionalized.

3. Claims 52 and 72 are rendered indefinite since the magnetic particles are disclose in the specification as being a part of the interfacial gasket, and their corresponding base claims has not been recited an interfacial gasket. Accordingly, claims dependent on these claims are rejected based on their dependency.

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4. Claim 52, 72, and their dependent claims are rendered indefinite since the claims give a choice between IR and magnetic particles. Yet, their dependent claims are confining it to one or the other.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 51-53, 57, 59-62, 64-69, 71-73, 76, 77, 79, 82, 84-91 are rejected under 35

U.S.C. 102(e) as anticipated by U.S. Patent No. 6,171,780 to Pham et al.

Pham et al. disclose a multi-well plate for use in assaying samples (see FIGS. 1A and 1B; COL. 10, lines 6-9). The multi-well plate comprises an upper plate or frame (10) that forms sidewalls (14) of at least one sample well and lower plate or layer (11) that forms the bottom walls of the at least one sample well (see FIGS. 1A and 1B; COL. 10, lines 9, 10, and 17-22; COL. 12, lines 45 and 46; COL. 13, lines 47-50). The multi-well plate, more specifically the lower plate or layer (11), is substantially flat, such that the surface texture or flatness is between about 0.001 mm and 2 mm (between about 1 micron and 2000 microns) (see COL. 14, lines 18-27; COL. 16, lines 39-43). If the lower plate or layer (11) is not substantially flat as defined in the latter, the optical quality of the lower plate or layer (11) can decrease because of altered optical and properties (COL. 14, lines 23-25). Even though the well bottoms may be substantially flat, they are not completely flat as indicated by the flatness between about 1

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micron and 2000 microns. One would expect these imperfections affecting the flatness of the well bottoms is a relief structure that may include lens, gratings, concentric circles, depressed regions, dimples, raised regions, or ridges. The upper plate or frame (10) is formed from an organic polymeric energy absorbing material, such as polystyrene or cycloolefins (see COL. 10, lines 13-15; COL. 15, lines 34-43, 54, and 55). The lower plate or layer (11), which may be a plate or film, is formed from an inorganic energy absorbing material, such as glass or quartz (see COL. 13, lines 56 and 57; COL. 15, lines 32-34, 54, and 55; COL. 38, lines 54-56). Example 5 discloses that the lower plate or layer is made of borosilicate glass (see COL. 38, lines 54 and 55). The upper plate or frame (10) and lower plate or layer (11) may be made of the same or different materials (see COL. 15, lines 34-36 and 52-54). The lower plate or layer (11) may have a thickness between about 10 micrometers and 450 micrometers (between about 0.01 to 0.45 millimeters) (see COL. 13, lines 60-67). The lower plate or layer (11) is either porous or non-porous. The upper plate or frame (10), lower plate or layer (11), or both may comprise of optically opaque materials, such as dyes, pigments, or carbon black (see COL. 13, lines 11-32). One would expect that these materials absorb infrared. A biologically active coating, such as polylysine or fibronectin, may also be attached to the bottom walls of the at least sample well to enhance attachment of cells (see COL. 14, lines 57-67; COL. 15, lines 1 and 2). The upper surface of the well bottom may be coated with an inorganic coating, such as thin metal layers, mirror coatings, or mirror polish (see COL. 13, lines 23-26). These coatings may be applied to the upper plate or frame (10), lower plate or layer (11) or both (see COL. 13, line 11-COL. 15, line 29). The upper plate or frame (10) and lower plate or layer (11) may have a unitary construction. The upper plate or frame (10) and lower plate or layer (11) are bound by sonic or

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heat welding or melting (see COL. 15, lines 49-52). One would expect that when the upper plate or frame (10) and lower plate or layer (11) are bound by sonic or heat welding or melting the organic polymeric material will form an interpenetrating polymer network in order to bond with the lower plate or layer (11). One would also expect that the upper plate or frame (10) and lower plate or layer (11) would be joined by covalent and fusion bond to some degree. Note: The limitations of "an energy-absorbing material, which when irradiated, bonds said upper plate or frame and lower plate or layer to each other wherein the organic polymeric material forms an interpenetrating polymer network" and "frame and layer are joined by either a covalent bond or fusion bond" are process limitations by which the multi-well plate is made. Patentability is based on the product and does not depend on its method of production. Since the claims are directed to the product of a multi-well plate, the limitation is accorded no patentable weight.

Claim Rejections - 35 USC § 103

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

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the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Alternatively, claims 51-53, 57-62, 64-69, 71-73, 76-82, 84-91 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,171,780 to Pham et al. in view of U.S. Patent No. 4,364,731 to Norling et al. or U.S. Patent No. 4,118,540 to Amort et al. or U.S. Patent No. 4,103,045 to Lesaichere et al. or U.S. 6,436,498 to Rangwalla et al.

In the event one would argue that there is no covalent bond, specifically poly(ethylene-co-trialkoxysilane), or formation of interpenetrating polymer network between the upper plate or frame and lower plate or layer, it would have been obvious to one having ordinary skill in the art at the time the invention was made to bond covalently or by forming interpenetrating polymer network using silane functionality for improved adhesion for a variety of substrates as taught by Norling et al. or Amort et al. or Lesaichere et al. or Rangwalla et al. Note: Since the silane network is usually coated on a substrate or formed between two substrates, the silane network may be considered a part of the substrates as the connection forms the ultimate product.

6. Alternatively, claims 51-53, 57-62, 64-69, 71-73, 76-82, 84-91 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,171,780 to Pham et al. in view of U.S. Patent No. 4,225,631 to Berger et al. or U.S. Patent No. 5,587,209 to Soga et al. or WO 99/40038 to Carre.

Pham et al. fail to disclose the polymer layer with silane functionality. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide silane functionality for immobilizing certain biomolecules or making the

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substrate abrasion resistant or providing a strong underlayer for strongly adhering to a necessary or desired coating as taught by Berger et al. or Soga et al. or Carre. Note: Since the silane network is coated on the substrate, the silane network may be considered a part of the substrate.

7. Claims 54-56, 74, 75, 78 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,171,780 to Pham et al. as applied to claims 51, 71, above, and further in view of U.S. Patent No. 3,900,360 to Leatherman.

Pham et al. fail to disclose the plate comprising an interfacial gasket, energy-absorbing material comprising ferromagnetic particles, and silane coating disposed at an interface between the upper plate or frame and lower plate or layer. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Pham et al. to include a infrared absorbent bonding layer with an interfacial gasket (24) with ferromagnetic particles (28) and fabric (26) of glass fibers enhanced with a silane such as aminopropyltriethoxysilane that is a self-heating stratified structure for securely joining the layers in a rapid and inexpensive manner as taught by Leatherman (see ABSTRACT; COL. 1, line 1-COL. 2, line 67).

8. Claims 54-56, 74, 75, 78 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,171,780 to Pham et al. in view of U.S. Patent No. 4,364,731 to Norling et al. or U.S. Patent No. 4,118,540 to Amort et al. or U.S. Patent No. 4,103,045 to Lesaicherre et al. or U.S. 6,436,498 to Rangwalla et al. as applied to claims 51, 71, above, and further in view of U.S. Patent No. 3,900,360 to Leatherman.

Pham et al. fail to disclose the plate comprising an interfacial gasket, energy-absorbing material comprising ferromagnetic particles, and silane coating disposed at an interface between

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the upper plate or frame and lower plate or layer. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Pham et al. in view of Norling et al. or Amort et al. or Lesaichere et al. or Rangwalla et al. to include a infrared absorbent bonding layer with an interfacial gasket (24) with ferromagnetic particles (28) and fabric (26) of glass fibers enhanced with a silane such as aminopropyltriethoxysilane that is a self-heating stratified structure for securely joining the layers in a rapid and inexpensive manner as taught by Leatherman (see ABSTRACT; COL. 1, line 1-COL. 2, line 67).

9. Claims 54-56, 74, 75, 78 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,171,780 to Pham et al. in view of U.S. Patent No. 4,225,631 to Berger et al. or U.S. Patent No. 5,587,209 to Soga et al. or WO 99/40038 to Carre. as applied to claims 51, 71, above, and further in view of U.S. Patent No. 3,900,360 to Leatherman.

Pham et al. fail to disclose the plate comprising an interfacial gasket, energy-absorbing material comprising ferromagnetic particles, and silane coating disposed at an interface between the upper plate or frame and lower plate or layer. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Pham et al. in view of Berger et al. or Soga et al. or Carre to include a infrared absorbent bonding layer with an interfacial gasket (24) with ferromagnetic particles (28) and fabric (26) of glass fibers enhanced with a silane such as aminopropyltriethoxysilane that is a self-heating stratified structure for securely joining the layers in a rapid and inexpensive manner as taught by Leatherman (see ABSTRACT; COL. 1, line 1-COL. 2, line 67).

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10. Claims 58, 63, 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,171,780 to Pham et al. as applied to claim 51 above, and further in view of WO 99/40038 to Carre.

Pham et al. fail to disclose that the glass the lower plate or layer is made of is boroaluminosilicate glass. However it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Pham et al. to make the lower plate or layer from boroaluminosilicate glass with a silane coating since it is optically transparent, compatible with biological materials and highly viscous as taught by Carre.

11. Alternatively, claims 71-73, 76, 77, 79, 82, 83-91 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,171,780 to Pham et al. in view of U.S. Patent No. 5,910,699 to Namba et al.

Pham et al. fail to disclose covalently bonding two substrates by covalent bonds of siloxane linkages. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Pham et al. to covalently bond two substrates by covalent bonds of siloxane linkages since it provides strong bonding at an atomic level at the bonding interface as taught by Namba et al. (see COL. 5, lines 37-44).

Response to Arguments

12. Applicant's arguments filed 9/29/2003 have been fully considered but they are not persuasive.

13. Applicant maintains that Pham et al. does not teach the use of an adhesive or a material that creates an interpenetrating network. It is noted that the current claims do not recite an adhesive and the previous claims excludes the use of an adhesive. Indeed, an "interpenetrating

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network” is recited. One would expect that welding or melting taught by Pham et al. would create an interpenetrating network in order to secure two layers together. Additional prior art has been cited to show that the concept is well known.

14. Applicant maintains that Pham et al. does not provide examples to the degree of flatness. Pham et al. do quantify flatness: The multi-well plate, more specifically the lower plate or layer (11), is substantially flat, such that the surface texture or flatness is between about 0.001 mm and 2 mm (between about 1 micron and 2000 microns) (see COL. 14, lines 18-27; COL. 16, lines 39-43). If the lower plate or layer (11) is not substantially flat as defined in the latter, the optical quality of the lower plate or layer (11) can decrease because of altered optical and properties (COL. 14, lines 23-25). Even though the well bottoms may be substantially flat, they are not completely flat as indicated by the flatness between about 1 micron and 2000 microns.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Quan whose telephone number is (703) 305-1947. The examiner can normally be reached on M-F (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (703) 308-4037. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Elizabeth Quan
Examiner
Art Unit 1743


Jill Warden
Supervisory Patent Examiner
Technology Center 1700

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